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THE VIOLET TREE.

The following notes on the Violet Tree were written by Dr. N. L. Britton who has kindly consented to their publication by this station.

It is pleasant to think that owing to the active endeavors of Mrs. Britton in procuring seeds, numerous seedlings will grow into living memorials of her interest in the preservation of this beautiful endemic tree.

T. B. McClelland.

RECORD OF GERMINATION OF SEEDS OF THE VIOLET TREE OR HUESO,
(PHLEBOTAENIA COWELLII)
IN THE SPRING OF 1933, AND OTHER NOTES ON THIS TREE.

On April 18, 1933, with Mrs. Britton and Mrs. Charles E. Horne, a large quantity of seeds of this rare and elegant tree were obtained from children near Juana Diaz, Puerto Rico, who had collected them, as previously instructed by Mrs. Britton, from a tree standing north west of the Military Road, at Kilometer 114, between the Descalabrados Water Gap and Juana Diaz. Much of this seed was sent to Mr. T. B. McClelland at the Agricultural Experiment Station, Mayaguez, and to Mr. George A. Gerhart, at the Forest Station, Rio Piedras; Mrs. Horne took a small amount to plant at her home at Monteflores near San Juan, a few were sent to Mrs. French Maxwell at Ensenada, and some were handed to residents in the vicinity of Coamo.

It is very satisfactory to record great success in germination, for several previous experiments had failed, Mr. McClelland, only, having been successful, in the Spring of 1928, with a few seeds from a tree near Parguera. He now (August 1933) reports that after rather prompt germination in May, 1933, he has over 190 seedlings from the Juana Diaz collection, large enough to be potted.

Mr. Gerhart reported on May 24, 1933, that over 125 seeds had then germinated at the Forest Station, being apparently every one of them received by him, and Mr. Barbour informed me in August, that a large number of seedlings had made healthy growth.

Mrs. Horne, observed on May 29, that 47 of her seeds had germinated, after planting on April 26, the first indication of germination being observed on May 19; this indicates that about three weeks time is required for germination, and agrees with Mr. McClelland's experience with the same seed at Mayaguez.

Mrs. Maxwell's planting at Ensenada yielded a number of seedlings.

The propagation of this valuable tree, through these experiments, has been shown to be practicable, when viable seed has been obtained; we were very fortunate in securing it on this occasion. Our observations on the maximum flowering time of different individual trees, over several years, indicates rather wide seasonal differences, ranging from February 9, 1922, (tree near Coamo Springs), to April 1, 1933 (tree near San Ildefonso, painted when in full bloom by Mrs. Horne). The same tree appears to bloom at about the same time each year that flowers are produced; we have not observed differences of more than about two weeks. It may be noted however, that we found no trees in bloom in the vicinity of Coamo, up to April 12, 1931, but can not say if they were retarded, or failed to bloom that year.

The interval between the time the flowers begin to unfold and the formation of young fruit, the period in which the tree is conspicuous by its numerous, small, violet flowers, is about two weeks in the vicinity of Coamo. The peculiar flat, broad, thin winged fruit 2 to 3 centimeters long, encloses 1 hairy seed.

The interval between maximum flowering and the ripening of fruit with viable seed, is four or five weeks.

At the time of flowering, the Violet Tree has usually dropped most of its leaves, and thus stands out prominently in the landscape, sometimes discernible from a distance of more than a kilometer, elegant and attractive. It is endemic in Puerto Rico, locally distributed naturally through the southern dry districts from the Rio Jueyes Water Gap, east of Coamo, to Salinas de Boquerón, near the Mona Passage, and also locally in the interior and northern, wetter parts of the island, where observed near Arecibo, near Utuado, in the forest at Indiera Fría near Maricao, at Asomante, near Aibonito, and on the limestone hills near Vega Baja. It is not rapid in growth; a tree carried through by Mr. McClelland, at Mayaguez, after nearly all his seedlings from the Parguera seed of 1928 had been eliminated by the hurricane of September 1928, was only about 1.6 meters high in August, 1933, indicating average annual growth during 5 1/2 years of about 30 centimeters; this tree was, however vigorous and healthy at that time.

Altitudinally, it has been observed from sea-level at Salinas de Boquerón, to about 500 meters or higher in the Maricao Forest and at Asomante. Its tolerance to rainfall has been noted as from about 75 centimeters (about 30 inches) in the Guanica Forest and Parguera to perhaps 175 centimeters (about 70 inches) near Utuado. In the Coamo-Juana Diaz region, where the trees are apparently most frequent at the present time, the rainfall is from 40 to 50 inches (say 100 to 125 centimeters); at Arecibo it is about 60 inches (say 150 centimeters).

As regards soil relationships, most of the trees in the Coamo-Juana Diaz region and near Parguera grow either in alluvium ^{along} arroyos, or on hills of stratified tuffs; near Vega Baja, however, a tree was observed on a limestone ridge.

From these observations it would appear, that the Violet Tree, naturally, grows under widely diverse conditions of altitude, temperature, soil, and rainfall; for the greatest success in establishing plantations, experimentation under various conditions will be needed. Presumably, alluvial or argillaceous soil with fifty or sixty inches annual precipitation, would be satisfactory.

The hard and dense yellowish-white wood (hueso, or bone) is valued for tool-handles and implements. The tree may become at least 20 meters high, with a trunk diameter up to about 70 centimeters.

The only known immediate relative of Phlebotaenia Cowellii lives in Southeastern Cuba; this is Phlebotaenia cuneata described by Grisebach in 1860 and the type species of the genus; it is less conspicuous than the tree of Puerto Rico, as observed by me at Ensenada de Mora in March, 1912.

Phlebotaenia Cowellii was first botanically described by me in 1907, from specimens of a flowering tree observed on a bank near Coamo Springs, March 23, 1906; it was named in honor of Mr. John F. Cowell, then Director of the Buffalo Botanical Garden, a diligent student of West Indian plants, who was with us at that time.